

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Applicant's or agent's file reference P65914PC00 | FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below. | |
| International application No. PCT/EP2004/006805 | International filing date (day/month/year) 18/06/2004 | (Earliest) Priority Date (day/month/year) 20/06/2003 |
| Applicant NESTEC S.A. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 14

- ☐ as suggested by the applicant.
☒ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/006805

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
- a. type of material
- ☒ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☒ in written format
- ☒ in computer readable form
- c. time of filing/furnishing
- ☒ contained in the international application as filed
- ☒ filed together with the international application in computer readable form
- ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/006805**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
1-8,13-16 (completely), 17-23 (all partially)

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4 (completely), 17-23 (partially)

Polynucleotide encoding SEQ ID NO. 2 or polypeptides at least 70% identical thereto, vectors, transformed cells and a method for modulating coffee flavour.

2. claims: 5-8 (completely), 17-23 (all partially)

Polynucleotide encoding SEQ ID NO. 4, 10, 12 or 14 or polypeptides at least 70% identical thereto, vectors, transformed cells and a method for modulating coffee flavour.

3. claims: 9-12 (completely), 17-23 (all partially)

Polynucleotide encoding SEQ ID NO. 6 or 8 or polypeptides at least 70% identical thereto, vectors, transformed cells and a method for modulating coffee flavour.

4. claims: 13-16 (completely), 17-23 (all partially)

Polynucleotide encoding SEQ ID NO. 16 or polypeptides at least 70% identical thereto, vectors, transformed cells and a method for modulating coffee flavour.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/006805

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/50 C07K14/81

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBL, WPI Data, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A | DATABASE EMBL 'Online! 29 April 1994 (1994-04-29), NONG, V. ET AL.: XP002269560 retrieved from EBI accession no. EMBL Database accession no. Z32795 abstract | 1-4, 17-23 |
| A | DATABASE UNIPROT 'Online! 1 March 2002 (2002-03-01), YAMADA, K. ET AL.: XP002269561 retrieved from EBI accession no. UNIPRT Database accession no. Q8VYSO abstract | 1-4, 17-23 |
| | ----- -/-- | |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

15 December 2004

Date of mailing of the international search report

22.03.05

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Page, M

INTERNATIONAL SEARCH REPORT

BEST AVAILABLE COPY

International Application No

PCT/EP2004/006805

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | Relevant to claim No. |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | |
| A | MARRACCINI PIERRE ET AL: "Molecular cloning of the complete 11S seed storage protein gene of Coffea arabica and promoter analysis in transgenic tobacco plants" PLANT PHYSIOLOGY AND BIOCHEMISTRY, GAUTHIER-VILLARS, PARIS, FR, vol. 37, no. 4, April 1999 (1999-04), pages 273-282; XP002197483 ISSN: 0981-9428 cited in the application | |
| A | LEROY T ET AL: "GENETICALLY MODIFIED COFFEE PLANTS EXPRESSING THE BACILLUS THURINGIENSIS CRYIAC GENE FOR RESISTANCE TO LEAF MINER" PLANT CELL REPORTS, SPRINGER VERLAG, DE, vol. 19, no. 4, 2000, pages 382-389, XP001002322 ISSN: 0721-7714 cited in the application | |
| A | WO 02/04617 A (KOCHHAR SUNIL ;NESTLE SA (CH); BUCHELI PETER (FR); LALOI MARYSE (F) 17 January 2002 (2002-01-17) cited in the application the whole document | 1-4, 17-23 |
| A | WO 02/42327 A (KOCHHAR SUNIL ;NESTLE SA (CH); HANSEN CARL ERIK (CH); JUILLERAT MA) 30 May 2002 (2002-05-30) the whole document | 1-4, 17-23 |
| X | DATABASE UniProt 'Online! 1 June 2001 (2001-06-01), "Cysteine proteinase inhibitor." XP002310747 retrieved from EBI accession no. UNIPROT:Q9ARH0 Database accession no. Q9ARH0 the whole document | 5,17-22 |
| A | | 6-8 |
| X | LING J-Q ET AL: "Cloning of two cysteine proteinase genes, CysP1 and CysP2, from soybean cotyledons by cDNA representational difference analysis" BIOCHIMICA ET BIOPHYSICA ACTA . GENE STRUCTURE AND EXPRESSION, ELSEVIER, AMSTERDAM, NL, vol. 1627, no. 2-3, 19 June 2003 (2003-06-19), pages 129-139, XP004431612 ISSN: 0167-4781 | 13,17-22 |
| A | -/-- | 14-16 |

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/006805

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| | <p>-& DATABASE UniProt 'Online! 1 October 2003 (2003-10-01), "Cysteine proteinase" XP002310748 retrieved from EBI accession no. UNIPROT: Q7X750 Database accession no. Q7X750 the whole document</p> | |
| A | <p>DATABASE USPTO Proteins 'Online! 14 February 2001 (2001-02-14), "Sequence 74 from patent US 6103514." XP002310749 retrieved from EBI accession no. USPOP:AAE48221 Database accession no. AAE48221 the whole document & US 6 103 514 A (NATORI SHUNJI) 15 August 2000 (2000-08-15) -----</p> | 13-16 |
| A | <p>DATABASE Geneseq 'Online! 17 October 2000 (2000-10-17), "Arabidopsis thaliana protein fragment SEQ ID NO: 36701." XP002310750 retrieved from EBI accession no. GSN:AAG30665 Database accession no. AAG30665 the whole document & EP 1 033 405 A (CERES INC) 6 September 2000 (2000-09-06) -----</p> | 1-4 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/006805

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|-------------------------------------------|---|---------------------|----------------------------|---------------------|
| WO 0204617 | A | 17-01-2002 | AU 1877302 A | 21-01-2002 |
| | | | WO 0204617 A2 | 17-01-2002 |
| | | | EP 1303621 A2 | 23-04-2003 |
| | | | US 2003148417 A1 | 07-08-2003 |
| WO 0242327 | A | 30-05-2002 | AU 1704902 A | 03-06-2002 |
| | | | CZ 20031745 A3 | 14-01-2004 |
| | | | WO 0242327 A2 | 30-05-2002 |
| | | | EP 1339850 A2 | 03-09-2003 |
| | | | US 2004010123 A1 | 15-01-2004 |
| US 6103514 | A | 15-08-2000 | JP 3118561 B2 | 18-12-2000 |
| | | | JP 11146789 A | 02-06-1999 |
| | | | CA 2238657 A1 | 18-05-1999 |
| | | | US 6214599 B1 | 10-04-2001 |
| EP 1033405 | A | 06-09-2000 | CA 2300692 A1 | 25-08-2000 |
| | | | EP 1033405 A2 | 06-09-2000 |